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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,598	03/30/2001	Weizhong Chen	PN01023AA	9348

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MOTOROLA INC  
5401 NORTH BEACH STREET  
MAILSTOP E230  
FORT WORTH, TX 76137

EXAMINER

LUGO, DAVID B

ART UNIT PAPER NUMBER

2634

DATE MAILED: 06/21/2004

*Handwritten number 3*

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/822,598

Applicant(s)

CHEN, WEIZHONG

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 12, 19, 20 and 29 is/are rejected.
- 7) ☒ Claim(s) 3-11, 13-18 and 21-28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date 2. | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: “203” (Fig. 2), “213” and “311” (Fig. 3), and “500” (Fig. 5). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities:
- a. Page 7, line 4, “signal processor 213” should be --signal processor 113--.
  - b. Page 7, line 18, --now U.S. Patent No. 6,424,673-- should be added after “SN 09/709690,”. All other cited U.S. patent applications cited should also be updated to include reference to any patent numbers, when applicable.
- Appropriate correction is required.

### ***Claim Objections***

3. Claims 1-29 are objected to because of the following informalities:
- a. Claim 1 recites the limitation “said symbol period” in line 4. There is insufficient antecedent basis for this limitation in the claim. It is suggested that “said symbol period” be changed to --a current symbol period--.
  - b. Claim 1, line 6, “the inter symbol” should be --an inter symbol--.

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- c. Claim 2, "said additional symbol periods" should be --said number of additional symbol periods--.
- d. Claim 4, line 3, it is unclear what the term "earlier" is being referenced to in the phrase "said number of additional symbol periods earlier".
- e. Claim 4, line 4, "the better path metric" should be --a better path metric--.
- f. Claim 6, line 3, "said plurality of states" should be --said plurality of symbol states--.
- g. Claim 8, line 3, "said symbol period" should be --said each symbol period--.
- h. Claim 8, line 5, "said plurality of states" should be --said plurality of symbol states--.
- i. Claim 11, line 2, "per said symbol period" should be --per symbol period--.
- j. Claim 11, line 2, "1/4 of said symbol period" should be --1/4 of a symbol period--.
- k. Claim 11, line 3, "1/8 of said symbol period" should be --1/8 of a symbol period--.
- l. Claim 12, line 2, "the difference" should be --a difference--.
- m. Claim 13, lines 3-4, "a received signal" should be --the received signal--.
- n. Claim 13, line 16, "to said other branches" should be --to other branches of said plurality of branches--.
- o. Claim 13, line 17, "the latest branch" should be --a latest branch--.
- p. Claim 13, lines 20-21, it is unclear what the phrase "a node on said path at an earlier symbol time period" is earlier than.
- q. Claim 14, line 2, it is unclear what the term "earlier" is being referenced to in the phrase "said node two symbol time periods earlier".

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- r. Claim 17, line 3, it is suggested that “two symbol time periods” be changed to --two symbol time periods earlier--.
- s. Claim 18, line 2, “the difference” should be --a difference--.
- t. Claim 19 recites the limitation “said symbol period” in line 4. There is insufficient antecedent basis for this limitation in the claim. It is suggested that “said symbol period” be changed to --a current symbol period--.
- u. Claim 19, line 6, “the inter symbol” should be --an inter symbol--.
- v. Claim 22, lines 3-4, it is unclear what the term “earlier” is being referenced to in the phrase “said number of additional symbol periods earlier”.
- w. Claim 22, lines 4-5, “the better path metric” should be --a better path metric--.
- x. Claim 28, line 2, “per said symbol period” should be --per symbol period--.
- y. Claim 28, line 2, “1/4 of said symbol period” should be --1/4 of a symbol period--.
- z. Claim 28, line 3, “1/8 of said symbol period” should be --1/8 of a symbol period--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Mui

U.S. Patent 6,690,739.

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6. Regarding claims 1 and 19, Mui teaches a signal processor in Fig. 25 arranged to recover a sequence of symbols from a received signal comprising a symbol selector (decoder 2514) for selecting a symbol based on the received signal over a time period including previous symbol periods, a current symbol period, and future symbol periods as a function of symbol vectors  $x$ ,  $y$ , and  $z$ , where " $x$ " is the vector of symbols associated with past branches, " $y$ " is the vector of symbols associated with the current branch, and " $z$ " is the vector of symbols associated with future branches (col. 39, lines 6-14). Mui further states that the length of the vector " $z$ " which is related to the number of future symbol periods is based on ISI components (col. 27, lines 59-61).
7. Regarding claims 2 and 20, as shown in Fig. 26, the number of future symbol periods represented by dashed line 2603 is equal to two for a trellis depth of  $(k + 2)$  (col. 39, lines 24-30).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 12 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mui in view of Mobin U.S. Patent 5,729,558.
10. Regarding claims 12 and 29, Mui discloses a signal processor for recovering a sequence of symbols from a received signal as described above, but does not expressly disclose means for carrier error correction that determines the difference between an expected received signal and the received signal and uses the difference to provide carrier error correction.

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11. Mobin discloses an error correction means 150 in Fig. 1 for determining the difference between an expected received signal based on a recovered symbol sequence and the received signal, and uses the difference to provide carrier error correction.

12. It would have been obvious to one of ordinary skill in the art employ the error correction technique of Mobin in the system of Mui to correct for phase errors.

***Allowable Subject Matter***

13. Claims 13-18 would be allowable if rewritten to overcome the objections set forth in this Office action.

14. Claims 3-11 and 21-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and amended to overcome the objections set forth in this Office action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

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**or faxed to:**

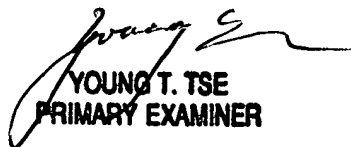
**(703) 872-9306**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

dl

6/4/04

  
**YOUNG T. TSE**  
**PRIMARY EXAMINER**